

“We just knew we had a problem”

Documenting the lived experience of PBB Contamination in Michigan

Implications for Environmental Health Literacy

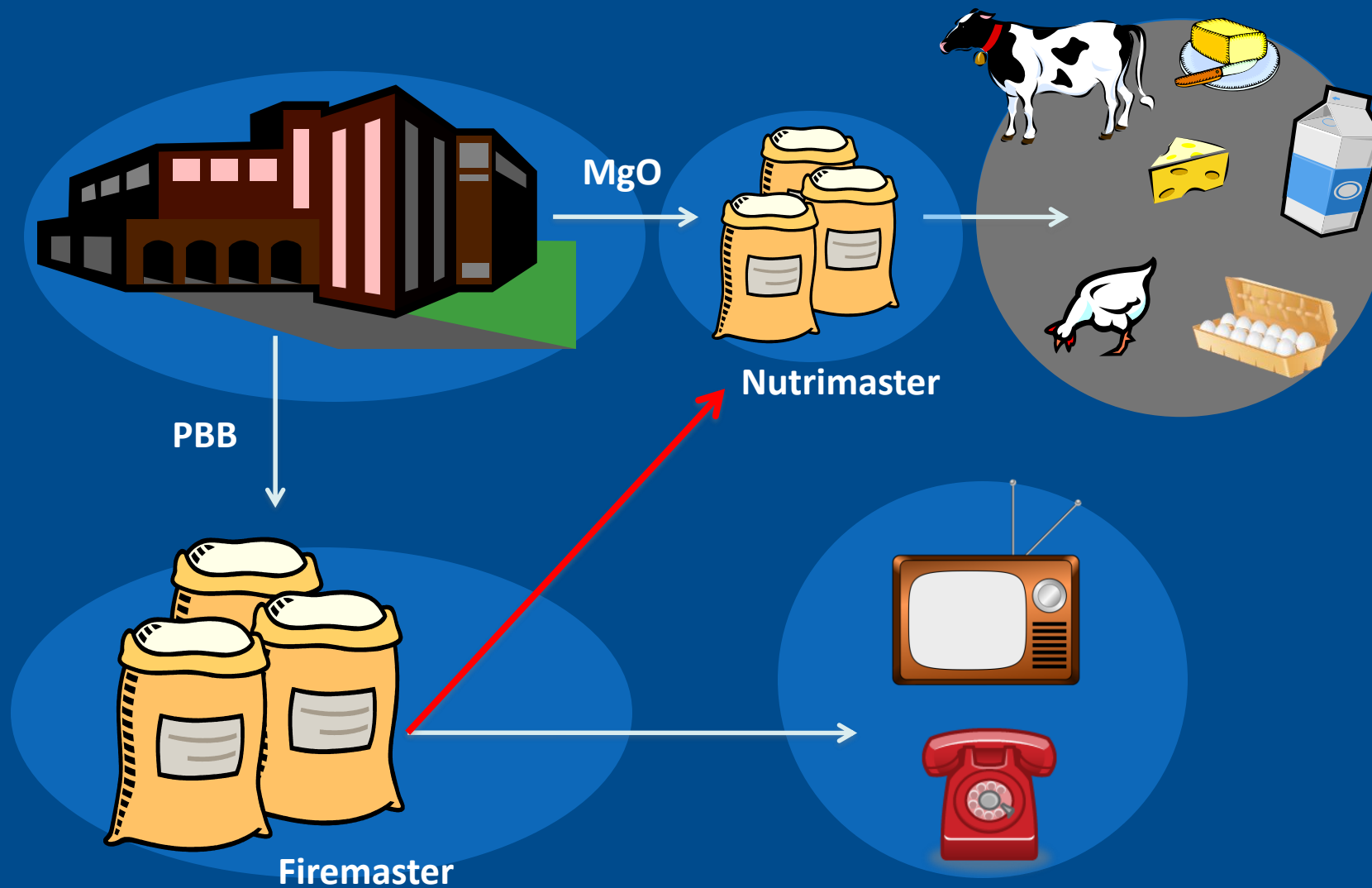


EMORY
UNIVERSITY



Support for this event provided by the National Institute of Environmental Health Sciences, National Institutes of Health

A Tragic Mix-up



“My daughter
had her first
period at age
five.”

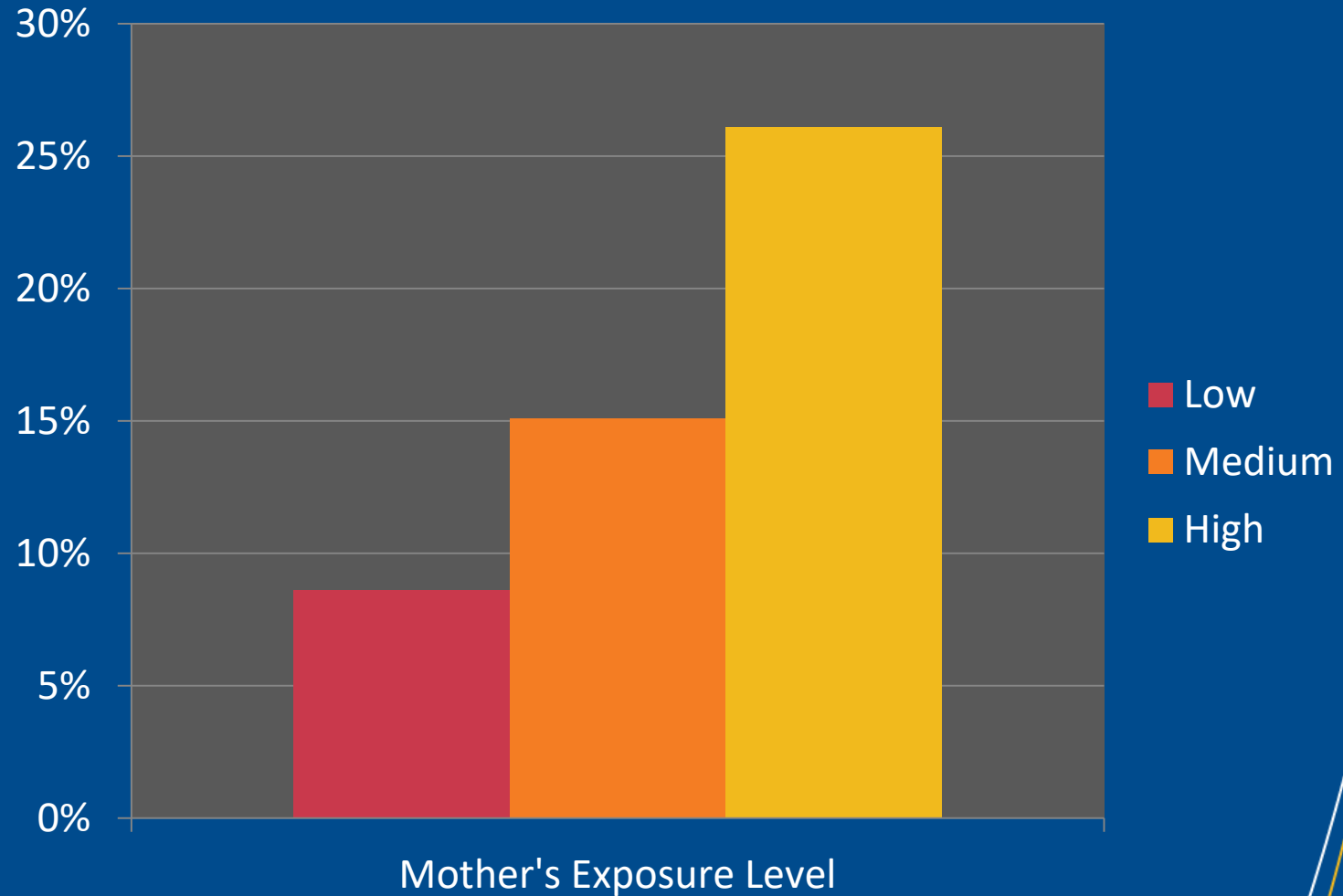
- *Anonymous
PBB Registry
member*



The Third Generation: Miscarried

“To this day, I
grieve for my lost
children.”

- *Anonymous
PBB Registry
member*



Additional Research Findings

- Thyroid problems
- Breast Cancer
- Newborn health (lower Apgar scores)
- Epigenetics – regulation of gene activity; PBB acts like a weak estrogen.

Why Oral Histories?

- Community Meetings
 - The community has knowledge that can improve research on health effects
 - We saw how hearing about the research helped them understand what had happened to them (validation of their health experiences)
 - We wanted the research to benefit those exposed
- These stories were powerful and needed to be preserved. These experiences were important.
- Opportunity to understand how people gather information and make sense of the impacts of environmental exposures.

The Michigan PBB Oral History Project

- Objectives
 - Document memories of the PBB mix-up
 - Establish a community presence in the historical record
 - Interpret personal stories for public audiences



Brittany Fremion interviews Shari (Johnson) Konkel. Photos courtesy of Shari Konkel.

“It was an answer, and that’s what they wanted, was an answer. It’s probably not the answer they wanted, but the uncertainty was pretty awful. To not know what was wrong and how it affected—I mean our family drank milk right out of the tank. We didn’t know during the beginning stages of the contamination what was going on, so we didn’t realize there might be consequences from that.”

- Shari Konkel

The Michigan PBB Oral History Project

- Process
 - Preparation: partnerships and protocols
 - Interviewing: open-ended questions, audio-recorded
 - Preservation: transcription, participant review, donation to Museum of Cultural and Natural History at CMU
 - Access: long-term preservation that facilitates future use

Participate in an interview to help create a permanent record that documents your experience as connected to the PBB livestock feed mix-up.

THE MICHIGAN PBB ORAL HISTORY PROJECT

GATHERING AND
PRESERVING STORIES

FOR INFORMATION OR TO SIGN UP, CONTACT:
BRITTANY FREMION
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CENTRAL MICHIGAN UNIVERSITY
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THE MICHIGAN PBB ORAL HISTORY PROJECT

IMPORTANT STEPS

- 1. Confirm Participation**
Sign up today! You will be contacted to confirm your interest and schedule a day, time, and location for your interview.
- 2. Grant Consent**
Before starting the interview, the researcher will go over the project consent form and deed of gift. Both contain information about the project, interview and preservation processes, and potential use of your interview materials.
- 3. The Interview**
The researcher will ask you to tell your story related to the PBB mix-up. The interview will be audio recorded and transcribed. Photographs and additional documentation may also be collected. Interviews may take 50 minutes to 2 hours, sometimes occurring over multiple meetings.
- 4. Review Recording**
The researcher will provide you with a copy of the interview recording so you may clarify or modify what has been gathered and may be preserved.
- 5. Oral History Products**
Interview materials will be preserved in a special research collection at the Museum of Cultural and Natural History at Central Michigan University for use by educators, researchers, and community members. Portions of interviews may also be made available online and/or used in an exhibit, for educational purposes, or future undefined research.



Left: Recruitment Flyer

Right: CMU undergraduate and graduate students who have contributed to the oral history project at a community event.

“There was a lot of anger in the community. Why did this happen? How could this have happened? And why did it take so long to be discovered when there were so many sick animals dying? There was a reason for it, and it just took *too* long to discover why.”

- Dorothy Reynolds



From Left: Roslund Family, Ithaca, MI. Courtesy of Marilyn (Roslund) de Bahena; JoAnne (Hall) Scalf, St. Louis, MI. Courtesy of JoAnne Scalf; and Alice Fish and Susan (Fish) Buckham interviewed in Battle Creek, MI; Neyer boys on family farm in Mt. Pleasant, MI. Courtesy of Tim Neyer; and Patrick and Christine Muldoon interviewed in Grand Rapids, MI.

- Participants
 - 42 individuals and approximately 45 hours of audio recordings

| Farm Family | Chemical Plant | Consumers | Other |
|-------------|----------------|-----------|-------|
| 16 | 8 | 9 | 9 |

Significance

Farming as a way of life “was totally disrupted through this tragedy--and it affected these people's psyches for years. And as old as Blaine [my father-in-law] is, if you were to strike this conversation with him again, the passion would flair. *His memories haven't died down from some of the events that occurred during this tragic time. So you always remember that there's a face behind the tragedy* and it's hard for the local community to even begin to understand how these people lived it and coped with it and coped with their neighbors, and the uncertainty of not having any income anymore, maybe not even having a livelihood anymore.”

- Frank Konkel

“PBB is an important part of the history of this nation, not just Michigan.”

- Christine Muldoon

“This thing evolves in chapters and the last chapter of this book has not been written.”

- Tim Neyer



The Michigan PBB Oral History Project A Showcase and Panel Discussion

**Thursday, April 25
12:00 to 1:00 p.m.**
Central Michigan University
Bovee University Center, Lake St. Clair Room

History faculty member Brittany Fremion and her students will present a showcase and panel discussion about their oral history project on PBB contamination in Michigan, one of the largest episodes of environmental and food contamination in our nation's history. Fremion and her students are conducting interviews to create a permanent record documenting individual experiences with the PBB livestock feed mix-up. The interview materials will be preserved in a special research collection at CMU's Museum of Cultural and Natural History for future use by educators, researchers, and community members.

In 1973 a chemical plant in St. Louis, Michigan, accidentally shipped fire retardant (polybrominated biphenyl or PBB) in place of a livestock feed additive (magnesium oxide) to state feed mills. Over the course of a year, farm animals ingested the toxic chemical, leading to the contamination of beef, milk, chicken, eggs, pork, and other farm products. The episode nearly destroyed farm industries in the state, as well as the livelihoods of thousands of Michigan residents. In addition, it is estimated that nearly 8 million people living in the lower peninsula ingested food containing PBB. The investigation of long-term health effects, initiated by the state in 1976 and transferred to Emory University in 2011, is the longest running public health study related to chemical contamination in U.S. history. The former plant site is connected to three Superfund projects in Genet County that, combined, rank among the costliest cleanup efforts in the Environmental Protection Agency's history.

Lunch will be provided. Sponsored by the College of Liberal Arts and Social Sciences Critical Engagements initiative, which brings together students and faculty from across the campus to consider pressing issues and challenging topics. Support for the Michigan PBB Oral History Project is provided by the National Institute of Environmental Health Sciences and is a collaborative endeavor with community members, the research team at Emory University, and partners at the University of Michigan.

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College of
Liberal Arts &
Social Sciences

**CRITICAL
ENGAGEMENTS**
QUESTIONS THAT MATTER



Photo courtesy of Tim Neyer

Please attend the
**PBB Oral History
Showcase**
Friday, March 22
5:30 pm - 7 pm

Insights from the PBB Oral
History Project, report of the
PBB Legislative Event, and
updates on PBB Research
activities.



St. Louis City Hall
300 N. 9th St., St. Louis, MO 63101
Light refreshments will be served.



From PBB to PFAS: Policy Lessons from Widespread Chemical Contaminations in Michigan

The goal of this program is to identify more effective strategies for preventing and responding to large-scale contaminations in Michigan. We welcome you to join this important discussion as a leader charged with overseeing Michigan's environment, protecting our citizens' health, and supporting our economy.

March 21, 2019
11:30am - 1:00pm

Michigan Senate Binsfeld Office Building
5th Floor, Room 5550
201 Townsend St., Lansing, MI 48933

11:30am-12:00pm Short Presentations

Michele Marcus, Professor, School of Public Health, Emory University
"Health Effects of PBB Exposure in Michigan"
Edward Lorenz, Reid-Knox Professor Emeritus, Alma College
"Important Lessons From the PBB Accident"

Al Franzblau, Professor of Environmental Health Sciences, University of Michigan
"PFAS: A Contemporary Environmental Contamination in Michigan"

12:00-12:30pm Questions and Answer Segment
12:30-1:00pm Poster Sessions and Networking



**"We ended up in bankruptcy...I remember the day
our farm was auctioned. I was walking around with
tears running down my cheeks."**

—Yvonne Yarnell, reflecting upon the loss of her family's dairy farm.



Yvonne and Floyd Yarnell, 1960s. Courtesy of Yvonne Yarnell for the Michigan PBB Oral History Project.

"First the cattle got abscesses, aborted calves and their milk production went way down until we couldn't afford to feed them anymore because they weren't giving enough milk to pay the bills. So we had to sell them. At that time the agriculture department was pushing selling low tolerance saying, 'There's nothing wrong with them. You have to sell them.' So we did, but if I had to do it over again, I would've never put them on the market. I would've had them shot like some of the people did. And I would've gone to jail if I had to because I didn't realize at the time how sick we were going to get."

—Y. Yarnell

"We had 125 cows that we had to milk at ten o'clock in the morning. After we got done, we pulled this homemade cart that had a 500 gallon tank on it, that we pumped the milk into, and we took it out to a hole that we had an excavator dig—a ten foot hole—and we had to run it into the pit, and then go back. You had to—there was no stopping working, you were always working, and you didn't get any money."

—G.T. Neyer

"It took the heart right out of farming because we lost those herds."

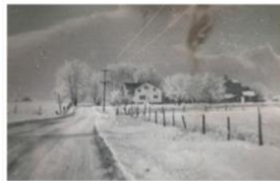
—M. Zuiderveen

"It takes years and years to build a herd that you can put your stamp on because you breed for what you like...I mean we wanted a certain style of cow that did a certain amount—that was efficient—and over a twenty-year period if you did anything right and had any breaks you started having your style of animal. Well, bang (pounds table) all of a sudden they're all buried. Now you're middle aged, and to start over, that in itself is a challenge (laughs). But you know, we survived it. It kind of cut the heart out of you. It wasn't just—in our case it was not just the money thing, I mean money is always important. You gotta make a living and you gotta pay your bills and all that, but if you work—it's like (being) an artist; building a good herd of cows is artwork."

—H. Zuiderveen



Hubert and Martha Zuiderveen as newlyweds (1960s) and in the early 2000s. Courtesy of the Zuiderveens for the Michigan PBB Oral History Project.



The Zuiderveen's farmhouse in Falmouth, Michigan. Courtesy of the Zuiderveens for the Michigan PBB Oral History Project.

**"We were blessed once we found out it wasn't our fault.
There really was a reason."**

—Bonnie Davis, on discovering her farm's exposure to PBB.



Alfred and Bonnie Davis, 1950s. Courtesy of Bonnie Davis for the Michigan PBB Oral History Project.

Bonnie and Alfred Davis had a thriving herd of Holsteins in the early 1970s when PBB hit. After the state quarantined their farm, they sent 300 animals to the Kalkaska burial site. She explained:

"It was hard putting those steers on that truck. We never sold a calf, they always grew up to become a cow... That was hard (long pause). That was hard. You hated to say goodbye."

On April 10, 1975, Representative Donald Albosta, co-chair of the Michigan House Agricultural Committee, took a busload of state legislators on a tour of farms with low-level contamination. Albosta wanted to show his colleagues some clean, well-managed farms where livestock were sick and dying through no fault of the farmers, especially after stories circulated the capitol that herds were more likely suffering from poor husbandry than PBB.

The group had lunch in the Davis family's kitchen. Their farm had been quarantined. Bonnie recalled:

"We went to the barn the day they came and toured it. And they asked me questions about how, how was it? How hard was it? And how did you know, like you're asking me actually. We just knew we had a problem and we were afraid it was our problem, and we were doing something wrong. We had no clue."



Aerial photo of Bonnie and Alfred Davis's farm after PBB (late-1970s). Courtesy of Bonnie Davis for the Michigan PBB Oral History Project.



Davis family portrait, 1972. Courtesy of Bonnie Davis for the Michigan PBB Oral History Project.

Bonnie worked as a waitress and in the kitchen of a local restaurant to help the family survive the quarantine and while waiting on a settlement. When they received an offer to settle, they refused to sign a waiver for human health:

"I looked at Alfred, [he] looked at me... We got up and left. And the only thing else Alfred said is, 'I will not promise you what will happen if it gets in my family.' And we walked out."

Codebook development

- Thematic & line by line coding
- Two coders apply preliminary codes to selected interviews & resolve discrepancies

| | |
|---|---|
| PBB Environmental Impacts | Environmental impacts beyond human and animal contamination (e.g., Superfund) |
| PBB - Farm Bureau and Michigan Chemicals | Comments, experiences and opinions related to these companies and their role in causing the PBB contamination and subsequent outcomes |
| PBB - information dissemination | Sources of information/channels (e.g., media) |
| PBB - Information sought | types of information sought - exposure, source, health impacts, what to do |
| PBB information - uncertainty/ambiguity | |
| PBB - initial awareness | Participants' initial encounter with PBB contamination or associated issues |
| PBB - State of Michigan (Government) | Opinions related to what the State did or did not do |
| PBB activism | Post PBB experience efforts to promote action and support research |
| PBB cases, claims and settlements | Legal cases, claims and settlements related to PBB contamination and how they played out |
| PBB contamination health effects (humans) and symptoms | Symptoms experienced, questions related to health effects and suspected correlations of PBB exposure and health conditions |

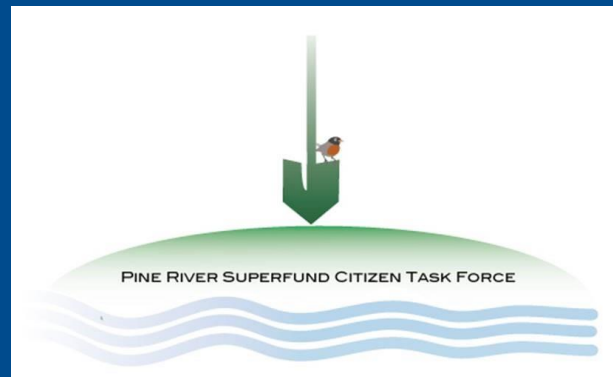
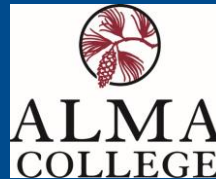
Preliminary Analyses

- Two coders for each interview (reliability)
- Long term objective: Examine themes that emerge against existing frameworks
 - Health literacy (e.g., Nutbeam, 2000)
 - Environmental health literacy (e.g., Finn & O'Fallon, 2017)
 - Critical health literacy (e.g., Mogford, Gould, DeVoght, 2010)

Contributions & Next Steps

- Farmers were first to observe problem
- Institutions were slow to recognize/acknowledge
- Oral histories capture the experience & longstanding personal, economic, social and health impacts
- Opportunity to understand how people gather & interpret environmental health information
 - Community science
 - Personal action
 - Collective action
- Contributions to environmental health literacy

Acknowledgements



Support for this work provided by the National Institute of Environmental Health Sciences,
National Institutes of Health.